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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,928	03/30/2006	Cristina Gomila	PU030162	5348

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EXAMINER
VO, TUNG T

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/573,928	GOMILA ET AL.
Office Action Summary	Examiner	Art Unit	
	Tung Vo	2621	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-17</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 March 2006</u> is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>03/30/06</u>

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 20080521

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Gomila (US

2006/0051068).

       Re claim 1, Gomila discloses a method for temporal concealment of at least one of a

missing/or corrupted macroblocks in a video stream coded in direct mode ([0026]) in H.264

standard, comprising the steps of: identifying at least one missing/or corrupted macroblock (100

of fig. 2); finding a co-located macroblock in a first previously transmitted picture ([0026];

determining a co-located motion vector for the co-located macroblock ([0026]); scaling the co-

located motion vector in accordance with a picture ([0029], scaling the co-location motion vector

into half or quarter pixel); predicting the at least one missing/corrupted data for the identified

macroblock by motion compensating data from both the first previously transmitted picture and a

second previously transmitted reference picture in accordance with the scaled co-located motion

vector (16 of fig. 1; 160 and 180 of fig. 2).

       Re claim 2, Gomila further discloses wherein the at least one missing/ or corrupted data is

predicted using a temporal-direct mode (180 of fig. 2).

Re claims 3, Gomila further discloses wherein the at least one missing/ or corrupted data is predicted using one of the temporal and spatial-direct modes derivation processes in accordance with at least one criterion selected prior to such predicting ([0026-0027]).

Re claim 4, Gomila further discloses wherein selection of one of the temporal and spatial-direct modes derivation processes is made in accordance with concealment region size ([0026-0027].

Re claim 5, Gomila further discloses wherein selection of one of the temporal and spatial-direct modes derivation processes is made in accordance a derivation mode of neighboring slices ([0026]).

Re claim 6, Gomila further discloses wherein the at least one missing/ or corrupted data is predicted by the steps of: performing the temporal and spatial-direct modes derivation processes ([0026]); and selecting results of one of the temporal and spatial-direct modes derivation processes on accordance with at least one a posteriori criterion ([0026]-[0027]).

Re claim 7, Gomila further discloses the step of deriving a size of blocks in the first and second pictures to which to apply the co-located motion vector ([0026]).

Re claim 8, Gomila further discloses wherein the results are selected in accordance with a boundary strength value of deblocking in accordance with the 1TU H.264 coding standard (22 of fig. 1).

Re claim 9, Gomila further discloses wherein the at least one missing/or corrupted data is predicted using a temporal-direct mode defined in the ITU H.264 coding standard ([0006]).

Re claims 10-17, see analysis in claims 1-9.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura

et al. (US 6,489,996) in view of Tourapis et al. (US 7,003,035).

        Re claim 1, Matsumura teaches a method for temporal concealment of at least one of a

missing/or corrupted macroblocks (error-free) in a video stream coded in direct mode (fig. 11),

comprising the steps of: identifying at least one missing/or corrupted macroblock (206 of fig.

11); finding a co-located macroblock in a first previously transmitted picture (20 of fig. 12);

determining a co-located motion vector for the co-located macroblock (V of fig. 8; V of fig. 12);

scaling the co-located motion vector in accordance with a picture (Vd, B7 of fig. 17); predicting

the at least one missing/corrupted data for the identified macroblock by motion compensating

data from both the first previously transmitted picture and a second previously transmitted

reference picture in accordance with the scaled co-located motion vector (B6 and B7 of fig. 13,

fig. 12, 203 of fig. 11).

        Re claim 2, Matsumura further teaches wherein the at least one missing/ or corrupted data

is predicted using a temporal-direct mode (fig. 12).

        Re claims 3, Gomila further discloses wherein the at least one missing/ or corrupted data

is predicted using one of the temporal and spatial-direct modes derivation processes in

accordance with at least one criterion selected prior to such predicting (temporal , Fram_n,

Frame_n-1, and Frame_n+1; spatial V, V1, V2, and Vd of fig. 12).

Re claim 4, Matsumura further teaches wherein selection of one of the temporal and

spatial-direct modes derivation processes is made in accordance with concealment region size (307 of

fig. 11, checks that the motion vectors calculated by the motion-vector calculator 207 point to error-free

data).

Re claim 5, Matsumura further teaches wherein selection of one of the temporal and

spatial-direct modes derivation processes is made in accordance a derivation mode of

neighboring slices (figs. 8 and 12)

Re claim 6, Matsumura further teaches wherein the at least one missing/ or corrupted data

is predicted by the steps of: performing the temporal and spatial-direct modes derivation

processes (fig. 12, B1-B5); and selecting results of one of the temporal and spatial-direct modes

derivation processes on accordance with at least one a posteriori criterion (B6 and B7 of fig. 12).

Re claim 7, Matsumura further teaches the step of deriving a size of blocks in the first

and second pictures to which to apply the co-located motion vector (V1, V2, V, and Vd of fig.

12, Frame_n-1 and Frame_n+1 of fig. 12).

Re claims 8-17, Matsumura teaches a method for temporal concealment of at least one of

a missing/or corrupted macroblocks (error-free) in a video stream coded in direct mode (fig. 11),

comprising the steps of: identifying at least one missing/or corrupted macroblock (206 of fig.

11); finding a co-located macroblock in a first previously transmitted picture (20 of fig. 12);

determining a co-located motion vector for the co-located macroblock (V of fig. 8; V of fig. 12);

scaling the co-located motion vector in accordance with a picture (Vd, B7 of fig. 17); predicting

the at least one missing/corrupted data for the identified macroblock by motion compensating

data from both the first previously transmitted picture and a second previously transmitted

reference picture in accordance with the scaled co-located motion vector (B6 and B7 of fig. 13,

fig. 12, 203 of fig. 11); wherein the at least one missing/ or corrupted data is predicted using a

temporal-direct mode (fig. 12); wherein the at least one missing/ or corrupted data is predicted

using one of the temporal and spatial-direct modes derivation processes in accordance with at

least one criterion selected prior to such predicting (temporal , Fram_n, Frame_n-1, and

Frame_n+1; spatial V, V1, V2, and Vd of fig. 12); wherein selection of one of the temporal and

spatial-direct modes derivation processes is made in accordance with concealment region size (307 of

fig. 11, checks that the motion vectors calculated by the motion-vector calculator 207 point to error-free

data); wherein selection of one of the temporal and spatial-direct modes derivation processes is

made in accordance a derivation mode of neighboring slices (figs. 8 and 12); wherein the at least

one missing/ or corrupted data is predicted by the steps of: performing the temporal and spatial-

direct modes derivation processes (fig. 12, B1-B5); and selecting results of one of the temporal

and spatial-direct modes derivation processes on accordance with at least one a posteriori

criterion (B6 and B7 of fig. 12); the step of deriving a size of blocks in the first and second

pictures to which to apply the co-located motion vector (V1, V2, V, and Vd of fig. 12, Frame_n-

1 and Frame_n+1 of fig. 12).

It is noted that Matsumura does not particularly teach discloses ISO/ITU H.264 coding

standard; and wherein the results are selected in accordance with a boundary strength value of

deblocking in accordance with the ISO/ITU H.264 coding standard as claimed.

However, Tourapis et al. teaches ISO/ITU H.264 coding standard; and wherein the results are selected in accordance with a boundary strength value of de-blocking in accordance with the ISO/ITU H.264 coding standard (col. 1, lines 28-39; col. 4, lines 20-28; col. 14, lines 50-63).

Taking the teachings of Matsumura and Tourapis as a whole, it would have been obvious to one of ordinary skill in the art to modify the teachings of Tourapis into the Matsumura to significantly improve coding efficiency especially for high/complex motion sequences.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ghanbari et al. (US 2006/0262855) discloses method and apparatus for compensating for motion vector errors in image data.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
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like assistance from a USPTO Customer Service Representative or access to the automated
information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tung Vo/
Primary Examiner, Art Unit 2621